NAVY CIVIL ENGINEER
Spring 2000
Vol. XXXVII Issue 2

SEABEES Helping Out in KOSOVO

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Navy Civil Engineer is published three times a year by the Naval Facilities Engineering Command, 1322 Patterson Avenue S.E. Suite 1000, Washington Navy Yard, D.C. 20374-5065.

Subscriptions
Subscriptions to *Navy Civil Engineer* are available from New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, Pa. 15250-7954. Price: $7.50 per year for domestic and $9.40 for foreign.

Postmaster
Send address changes to editorial and business offices: Naval Facilities Engineering Command, Attn: Editor, *Navy Civil Engineer* Magazine (Code PA), 1322 Patterson Avenue S.E. Suite 1000, Washington Navy Yard, D.C. 20374-5065. Telephone: (202) 685-9008, DSN 325-9008. Fax: (202) 685-1484

Address changes for paid subscriptions ordered through Superintendent of Documents should be sent to the Superintendent of Documents' address above.

Editorial Offices
Send submissions to Public Affairs Office, Naval Facilities Engineering Command, 1322 Patterson Ave. S.E. Suite 1000, Washington Navy Yard D.C. 20374-5065.

Authorization
The Secretary of the Navy has determined this publication is necessary in the transaction of business required by law of the Department of the Navy. Funds for printing this publication have been approved by the Navy Publications and Printing Committee.

Navy Civil Engineer is intended for the information of regular and reserve personnel of the Civil Engineer Corps, United States Navy, and key civilian employees of NAVFAC, subordinate commands, and other mission-oriented activities.

Cover Photos:
Clockwise from top: Local children greet a Seabee who is helping restore their school in Kosovo. A Seabee welds a fence around the school to keep children and soccer balls from rolling down the side of the hill. Kosovar residents receive medical examinations from U.S. troops. *(Photos by JO2 Maria Blanchard and LCDR Ed Austin.)*

NAVY CIVIL ENGINEER

Spring 2000 Vol. XXXVIII Issue 2

Departments

Speaking From Topside
2 Rear Admiral Michael Johnson Discusses Kosovo

Navy Civil Engineer Notes
3 NAVFAC Components Aid in Alaska Air Search and Rescue
4 Thirty-Two Days to a New Runway
5 Pier Includes Unique Containment Structure Producing Better Food With Less Labor
6 What to Say About Y2K?
7 NAVFAC Selects 2000 Engineers of the Year
8 U.S. Naval Training Center Bainbridge Changes Hands
9 Liaison Officers Improve Client Relations

Civil Engineer Officer Candidate School
28 One Hundred Twenty-Seven Complete Basic Training

Features

Looking at a CEC Career
10 CEC accessions officers work at Spreading the Word about the benefits of a career as a Navy civil engineer.
13 A junior CEC officer discusses Learning the Ropes of a career with the civil engineer corps.

Cover Story
16 Seabees lend A Helping Hand to those in need in Albania and Kosovo.

Other Stories
24 HVAC scheduling template provides contractors and Navy personnel with Guidelines for Completion.
26 New technology safely handles waste containing Asbetos.

SPEAKING FROM TOPSIDE

Each year we celebrate the founding of the Naval Facilities Engineering Command, the Civil Engineer Corps, and the Seabees. These three elements of active and reserve military personnel and civilian professionals make up what we call the NAVFAC family.

While we are a large, diverse, and global family, we are here to support the Navy/Marine Corps Team and to solve problems. We have both the technical engineering expertise and business acumen to serve this leading edge team. But we need to develop one seamless organization in the eyes of our clients. Our restructuring around our business lines and our operational focus will better enable us to accomplish that. The field office model, as but one superb example, gives our clients one stop shopping for all NAVFAC products and services. We have to demonstrate by deeds our value to the Navy and continue to do things faster, better, cheaper and easier. It's a tall order; we're very capable of filling it

The feature story in this issue of *Navy Civil Engineer* illustrates how the Seabees have demonstrated that they can do things faster, better, cheaper and easier during their deployment to Kosovo. U.S. European Command's General Wesley Clark and Chief of Naval Operations Admiral Jay Johnson both have praised Naval Mobile Construction Batallion Three's most-recent efforts in support of the Army and Operation Shining Hope. When I asked Brig. Gen. Peterson, Commanding General of Task Force Falcon in Kosovo last October what I could do for him, his reply was simple, "Send me more Seabees!"

NMCB Three has demonstrated by its accomplishments in Kosovo why the Seabees are the "engineer force of choice."

First on the scene - In Albania, the Seabees were one of the most forward-deployed ground units in the region in relation to the front lines in Kosovo, less than 20 miles from the Kosovo border during the bombing campaign.

Interoperability - The Seabees continue to prove themselves as true team players in contingency environments, and their performance in Balkans is another shining example. The Seabees worked side-by-side with Air Force aviation and communications personnel, Army combat forces and engineers, Brown and Root contractors, and Kosovar locals.

Flexibility - When the scenario in the Balkans shifted from road repair in Albania to camp construction in Kosovo after the signing of the peace accord, the Seabees responded quickly and efficiently to the rapidly changing events. Our well-oiled machine smoothly shifted gears.

Reserve integration — Eighty PSRC personnel were originally called up, and 65 new PSRC personnel have been recalled to continue the superb job the original reserve personnel have done. The reserves have provided the vital additional resources enabling the Kosovo mission to be a true "team" success in addition to keeping the Commander in Chief, U.S. Naval Forces Europe priority projects at the forefront.

RADM Michael Johnson

As wonderful as the Seabees are, they can't do it all alone. In the past several years NAVFAC civilians, including women, donned "cammies" and Kevlar and deployed to Bosnia, Kosovo, Honduras, Haiti and Somalia to provide design, contracting and real estate support to the Seabees. They put in the same long hours, endured the same hardships, and faced the same dangers as their military contingency engineer counterparts to get an important job done. An outstanding example of what the NAVFAC family "Can Do."

Seabees are stretched thin, but we continue to accept and accomplish missions on short notice. We get there first, and we make a significant impact. The optempo for Seabees is increasing each year. Demands are greater, response is quicker, and results are more significant. I'm not just talking about major contingencies like Albania and Kosovo, but smaller projects at locations up and down the U.S. East Coast. Seabees are great, but there are still areas we can improve. Retention of fine officers and enlisted is probably our toughest challenge now. The lure of a good economy is strong, but the excitement and camaraderie in the Seabees have never been higher. Today's Seabees meet every challenge head-on with fortitude and innovation just as their predecessors have for almost 60 years. Keep charging, NAVFAC! Keep charging, Civil Engineer Corps! Keep charging, Seabees! Can Do!

M. R. Johnson

Rear Admiral Michael R. Johnson, CEC, USN
Commander, Naval Facilities Engineering Command,
Atlantic Division
Commander, Second Naval Construction Brigade

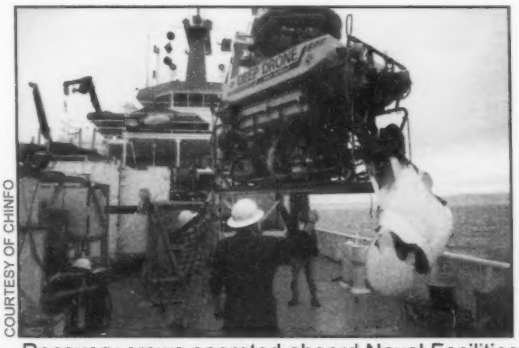
When Tragedy Strikes

NAVFAC components aid Alaska Air search and recovery efforts

Compiled from Navy News Sources

When tragedy strikes, the Department of the Navy steps in when it can to provide resources and support to those in need. When an Alaska Air flight crashed off the coast of California, January 31, tragedy struck close to home for Naval Facilities Engineering Command components in Port Hueneme, Calif. The Naval Facilities Engineering Service Center, the Naval Construction Battalion Center and the Seabees stepped in to provide resources, specialized skills and manpower during a time of great sorrow and need. Alaska Air Flight 261 was in flight from Puerto Vallarta, Mexico, to San Francisco when it crashed about 40 miles northwest of Los Angeles International Airport.

Crews aboard the *M/V Independence*, owned by the Naval Facilities Engineering Service Center in Port Hueneme, Calif., and operated under contract by Mar, Inc., recovered pieces of the aircraft's tail section and jackscrew. This discovery shed some light on the cause of the crash for investigators. The jackscrew moves the aircraft's horizontal stabilizer up and down at the pilot's command. After the recovery of the tail section and the jackscrew of the MD-83, investigators determined that the crash was indeed caused by a failure in the horizontal stabilizer.



COURTESY OF CHINFO

Recovery crews operated aboard Naval Facilities Engineering Service Center's *M/V Independence*.

The Naval Construction Battalion Center (CBC) Port Hueneme provided logistical support for search, rescue and recovery efforts of Alaska Airlines Flight 261. More than 300 personnel from throughout the base offered their skills in areas such as medical, logistics, security, environmental, port operations, public affairs and public works. At the onset and for several weeks, the center's port served as a base of operations for the National Transportation Safety Board, Federal Bureau of Investigation, U.S. Coast Guard, U.S. Navy, U.S. Public Health, Red Cross, Salvation Army, various ships and watercraft, and local and state agencies.

Seabees from Naval Mobile Construction Battalions Three and Five, homeported in Port Hueneme, were also on hand to help with search and recovery efforts. The Seabees worked round the clock; they helped remove debris and remains from the search and recovery vessels as items were brought in from the sea and provided security for areas where authorities collected, stored and researched material collected from the operation.

When a ship came in with material to be unloaded, Seabees began the solemn task of removing material collected by the ships. Federal firefighters briefed the Seabees on handling procedures. Hand over hand, the team of Seabees carefully transferred material from the ships to the pier. After the Seabees collected the debris they turned the material over to FBI agents, who stored it in warehouses so it could be sorted, studied and identified in hopes it would provide answers.

As tragic and gruesome as the scenario was, Seabees were glad to be able to help. Search and recovery procedures fall into the Seabee's job description. The task of handling recovered debris from a crash site can sometimes mean witnessing things that may be hard to handle, but Seabees are trained for it.

"I wouldn't want to have anybody else but us do this," said Builder Construction Apprentice Charlie Lawrence of NMCB Five. "I don't want other people to experience the conditions and scenarios that can happen during a crash site recovery. This is our job. We're ready to do what needs to be done to help bring this tragedy to a close."

"Being able to help people in a time of need is exactly why I joined the Seabees," said Equipment Operator Constructionman D.L. Kitaj of NMCB Five. "Seabees have long held a reputation assisting in relief efforts such as this, and I wanted to be a part of that."

NAVY CIVIL ENGINEER Notes

32 Days to a New Runway

Runway repair coincides with NATO air strikes

By CDR David F. Kelley, PE, Joe Cirvonello, PE, Bill Crone, PE

Rapid runway repair, also known as "triple R," is usually associated with work completed under combat conditions. When an EFA Mediterranean resident officer in charge of construction (ROICC) team completed repairs to the runway at Aviano Air Base, Italy, they did not work under fire, but the project is an example of a successful "triple R" operation.

Darrell Bryan, from Naval Facilities Engineering Command, Atlantic Division, did the initial site survey of the Aviano Air Base runway in November 1998. He and his staff put together the design and determined the repairs would necessitate a complete runway closure that could be completed in a 30-day, round-the-clock operation. The scope of work included replacing 580 feet of the 150-foot-wide, 14-inch-deep Portland cement concrete at the runway's 05 approach, milling and replacing the top two inches of the 7,500-foot-long by 150-foot-wide asphalt pavement surface, and replacing four arrestor gear sets. The cost of the work totaled more than $5 million.

Demolition crews make progress on the runway 05 approach.

It was hard to find a time to complete the repairs because the runway was important to NATO operations. The U.S. Air Forces in Europe (USAFE) staff chose to close the runway from April 20 through May 20, 1999. Due to the short time frame and urgent need for repairs, Atlantic Division chose to use an in-place construction capabilities contract (CONCAP).

Just when the team was in the midst of its preliminary work, Aviano Air Base squadrons became fully involved in Operation Allied Force, the air campaign over Kosovo. During the air campaign, the planning effort for the eventual runway shutdown continued.

When the air campaign was over in mid-June, USAFE directed the repairs take place during a closure period during the entire month of September. As the Aviano-based squadrons were redeployed and stateside-based aircraft were sent home, the construction work began in earnest.

The first week was spent focusing on asphalt and concrete removal. The team also began asphalt placement for the new surface. Meanwhile, workers placed concrete at the 05 end of the runway. At this point, the two other major portions of work on the job had also begun. The first, the electrical work, continued through the entire runway shutdown period.

The last major item of work was probably the most challenging. The arresting gear installation proved to be the major hurdle to completing the work in the 32-day closure period. The team began the work with excavations for the fair lead beam foundations on day two and ended with arresting gear certifications on day 31.

Overall, the project was a success. There were many factors that contributed to it, but the key to success in this operation was careful planning. Atlantic Division heeded the old adage, "If you fail to plan, plan to fail," and the planning paid off.

CDR David Kelley is the Resident Officer in Charge of Construction (ROICC) for Northern Italy at Aviano Air Base. Joe Cirvello is the Chief Engineer for ROICC Northern Italy. Bill Crone is a project engineer at ROICC Northern Italy and was the project engineer for this job.

Producing Better Food With Less Labor

By LT Theron Colbert

Officer in Charge of Construction Far East Contracts Office in Okinawa, Japan, administered the $4.3 million conversion of a cook-chill facility project for Marine Corps Base Camp Bulter. Completed in June 1999, this facility is the first of its kind within any military service and can produce 14,000 meals per day to be delivered, then later prepared and served at all 11 mess halls on the Camp Butler complex.

Unlike the traditional cooking methods, cook-chill technology uses pasteurization techniques to produce meals with up to a 45-day shelf life. Since the products are chilled and not frozen, reheating and serving at individual mess halls will be possible in as little as 15 to 20 minutes, rather than consistently having to rush to produce enough meals to feed all the troops. Cook-chill technology significantly decreases mess hall meal preparation time, leaving more time to focus on grilled and line service items, pastries, baked goods and specialty items. It also greatly reduces labor intensive meal preparation operations and is expected to reduce food service personnel's current 55 to 70-hour work week to 34 to 40 hours.

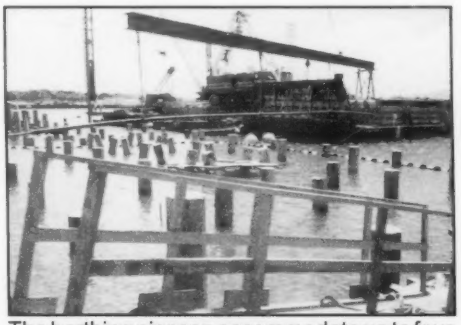
Cook-chill technology uses pasteurization techniques to produce meals with up to a 45-day shelf life.

Pier Includes Unique Containment Structure

By S. Richard Chan, Derrick Sano and William Young

The dedication of a $24-million submarine berthing pier at the Naval Submarine Base in Pearl Harbor, Hawaii, marked an important milestone to support a new generation of U.S. submarines.

The new pier, which replaces two piers constructed in the late 1920s, will serve SSN 688 and SSN 21 submarines.



The berthing pier can accommodate up to four Los Angeles Class SSN 688 and Seawolf Class SSN 21 submarines at one time.

The construction of the pier was made possible by a unique design solution for the disposal of dredge material considered unsuitable for ocean disposal. Naval Facilities Engineering Command, Pacific Division, administered the design, and the Regional Officer in Charge of Contracts, Pearl Harbor, administered the pier construction. The pier was designed by Moffatt & Nichol Engineers, Long Beach, Calif., and constructed by Healy Tibbitts Builders, Inc., Aiea, Hawaii.

The design incorporated a unique containment structure to store 20,000 cubic yards of dredged material. The containment structure is comprised of 286 four-foot wide, 16-inch thick concrete sheet piles weighing up to 30 tons each. The sheet piles are supported and stabilized by tie rods. Tongue-and-groove joints were arranged between the concrete sheet pile panels. A joint filler was used to seal joint openings greater than 1/4 inch, and all joints were covered with neoprene sheets that are secured to the concrete to minimize leakage.

The Navy dedicated the pier in honor of the first enlisted submariner to earn the Medal of Honor, the late Torpedoman Second Class Henry Breault.

What to Say About Y2K?

Preparedness team presents lessons learned to Congress

By Lori Tucker

The hype and anxiety of the few years leading up to Y2K culminated in a rather ordinary night for the Navy on January 1, 2000, mainly due to Naval Facilities Engineering Command's Y2K Ashore team, the Navy's lead Ashore Y2K preparedness planners.

The Navy spent $1 billion to ensure the new year rolled over as smoothly as it did. In 1998, NAVFAC accepted the assignment from the chief of naval operations to coordinate Y2K vulnerability assessments at all 1,003 Navy commands ashore. NAVFAC formed a Y2K lead team at headquarters in Washington, D.C., and established Y2K client support cells in all the engineering field divisions and activities, the Naval Facilities Engineering Service Center, the Seabee Logistics Center, the Navy Crane Center and all public works centers. Through this matrix organization, numbering more than 250 personnel, NAVFAC was able to accomplish a smooth rollover.

The job included establishing Y2K policy requirements for all Navy shore installations, devising a master Y2K score card for the Secretary of the Navy that tracked all Navy commands' Y2K progress, auditing 560 utility companies and 840 lessors for Y2K compliance, and assisting all installations with public works-related Y2K contingency planning. The team also devised Y2K contracting policy, audited BRAC property on behalf of local reuse authorities, tested critical equipment Navy-wide and fixed $50 million worth of facilities systems and equipment.

On the New Year holiday weekend alone, NAVFAC spent $250,000 largely in salaries for the 500 to 600 people who were on watch or standby all weekend around the world. Much in thanks to the preparations made ahead of time and the personnel on watch that weekend, only five minor problems occurred worldwide during the Y2K rollover.

'The proof of the pudding's in the eating. No one had ever done anything like this before.'
–Commander Hank Chase, CEC, USN

In Sigonella, Italy, a security system froze and had to be reset. In Norfolk, Va., a utility monitoring system temporarily had to be run manually. In Pensacola, Fla., a gas pumping system's readouts were not correct. The same happened to a fuel dispensing system in Sasebo, Japan. At a public works center a utility rate calculating program printed the wrong date. All these minor problems were fixed within 24 hours of the rollover, thanks to the larger NAVFAC Y2K team.

Commander Hank Chase, then Navy ashore Y2K project office head, thought only five minor problems was an impressive number.

"We worked with well over 50,000 systems and devices, 121 bases, 860 utility companies and 840 leased spaces," Chase said. "In this huge universe of systems, to only have five minor problems is not bad at all."

Now that Y2K has come and gone, the Y2K Ashore team can probably rest a little easier knowing they were successful in their task, but the job is not over. After spending more than one year and $1 billion working on Y2K, Congress would like to hear some feedback from the team.

"Congress wants to know how the money was spent and what we learned about ourselves in a formal lessons learned process," Chase said. Representatives from all Navy Echelon II headquarters have met for discussions in Hawaii and Pensacola, Fla., under the leadership of the Navy's Y2K project officer, Rear Admiral Jay Cohen, to discuss topics and recommendations to make to the chief of naval operations.

But for all the time and money spent in the project, Chase found little to complain about.

"The proof of the pudding's in the eating," he said. "No one had ever done anything like this before. There may have been some unhappiness in the field as we kept coming up with new tasks, but I don't think anyone can be unhappy about it now."

Lessons Learned From Y2K

All the time and money the Navy spent on Y2K preparedness benefited the Navy in more ways than one. Not only did the Navy experience a relatively worry-free rollover on New Year's Eve, but the experience also provided an opportunity to reexamine and reevaluate the way things are run. Representatives from all four Navy Echelon II headquarters met to discuss topics and recommendations to make to the chief of naval operations. Some of the topics currently being worked on under CNO leadership are:

1. Allowing Regional Coordinators to take responsibility for part or all of tenants' missions in the future in the face of an issue similar to the Y2K project.
2. Managing all the Navy's information technology and other high technology and associated data in a centralized fashion.
3. Developing a current "mapping" document that identifies and better explains relationships between all regions, hosts, tenants, mission claimants, base operating support claimants, etc.
4. Streamlining the way active commands get reserve personnel for special projects like Y2K.
5. Linking installation disaster preparedness with larger concepts of force and critical infrastructure protection.

NAVFAC Selects Engineers of the Year for 2000

By Lori Tucker

Congratulations to Darrell Bryan and Lieutenant Stephen L. Alm, NAVFAC's civilian and military selectees, respectively, for the 2000 Engineers of the Year Awards.

Bryan, head of the Geotechnical Paving Branch of the LANTDIV Design Division, was recognized for engineering accomplishments in runway design and construction around the globe, including Marine Corps Base Quantico, Va.; Naval Station Guantanamo Bay, Cuba; Naval Station Rota, Spain; Aviano Air Base, Italy; and Amman, Jordan. His in-house design and on-site construction support at Aviano came at the most critical stage of NATO operations in Kosovo. In addition, he is on the organizing committee for the Transportation Systems 2000 Workshop, a world-wide conference that will bring together military transportation engineers to discuss land and air facilities and provide information on military airfields, roads and railroads for design, construction and maintenance engineers.

Rear Admiral Peter W. Marshall, Vice Commander, NAVFAC, met with Lieutenant Stephen L. Alm and Darrell Bryan to congratulate them for their selection as the 2000 Engineers of the Year.

Lieutenant Alm's accomplishments included construction management of several historic, highly visible projects at the U.S. Naval Academy, valued at $23.4 million, most significantly the repairs to Buchanan House, Officers and Faculty Club, Senior Officer's Quarters, Sampson Hall and Mahan Hall. Under his direction, the $4.1 million Buchanan House Renovation project was completed in one year in spite of 103 modifications for additional work worth $960,000. Alm also developed an engineering status web site for the J4 engineer while acting as a liaison for Joint Task Force Noble Anvil during a brief deployment to Naples, Italy.

NAVY CIVIL ENGINEER Notes

Changing Hands

Navy transfers former U.S. Naval Training Center Bainbridge

Naval Training Center Bainbridge Now and Then
BELOW: Seaman Keith Grimes, Navy ceremonial guard, passes the United States flag to Judge Walter Buck during the transfer ceremony. LEFT: The Main Gate of Naval Training Center Bainbridge in the 1950s.

By John E. Peters

The U.S. Navy signed a quitclaim deed, February 11, which turned over the property of the former U.S. Naval Training Center Bainbridge in Port Deposit, Md., to the Bainbridge Development Corporation (BDC). The transfer of the property was made possible in January after negotiations were completed between the Navy and BDC. Engineering Field Activity Chesapeake, located in Washington, D.C., handled the environmental cleanup and transfer. The activity's services over the last 18 months included completing eight environmental remediation projects totaling $15 million, signing a record of decision for two installation restoration sites, and conducting five public meetings to address community concerns.

A transfer ceremony was held February 14. Present at the ceremony were Senator Paul S. Sarbanes (D-Md.); Representative Wayne T. Gilchrest (R-Md.); Maryland Delegate David D. Rudolph; Gene Lynch, assistant chief of staff for the Governor of Maryland; Robert B. Pirie Jr., assistant secretary of the Navy (installations and environment); Rear Admiral Michael Johnson, Commander, Naval Facilities Engineering Command, Atlantic Division; Bradley Campbell, administrator, EPA Region III; Harland Graef, chairman, Bainbridge Development Corp.; and Captain Paul D. McMahon, Jr., commanding officer, Engineering Field Activity Chesapeake.

"This closure and turnover did not happen quickly, but we are here," Pirie said. "The property is clean and ready for community use."

U.S. Naval Training Center Bainbridge (NTC) opened in 1942 and was named in memory of Commodore William Bainbridge, commander of the famous frigate *Constitution* and founder of the first naval training center. The largest subordinate activity of NTC was the Recruit Training Command. By the end of World War II in 1945, the command had trained 244,000 recruits.

U.S. Naval Training Center Bainbridge was deactivated as a training center in 1947 and reactivated in 1950, at the time of the Korean conflict. During the Korean War the training center reached its peak population of 55,000 people.

While it was open, the center served as the home for several service schools that provided technical training for recruits and Sailors. After recruit training was phased out in 1958, Bainbridge became the site of the Nuclear Power School, the Naval Reserve Manpower Center, and several other specialized training schools. Even as late as the mid-1960s, 6,000 naval personnel with 4,000 dependents lived there. By 1971, the Navy announced its intention to close the base, and in 1974 the last class graduated.

The 1,118-acre training center was closed in 1976 for budgetary reasons after 34 years of service. By the time the base closed its doors, more than 500,000 Sailors had received recruit training, and thousands more had received specialty training.

Between 1974 and today, several significant issues have been cause for the delay in property transfer. During the 1980s, the U.S. Department of Labor operated a Job Corps Program at the facility. Special legislation was passed in 1986, to allow the Navy to dispose of the base and initiate the plans for transfer of the property to the state of Maryland.

Building Relationships

Liaison Officer program improves service to clients

By Mark Kraynak

The Naval Facilities Engineering Command has embarked on an ambitious program designed to improve service to clients worldwide. The Liaison Officer (LnO) program builds on existing capabilities and relationships by establishing frontline personnel who aim to anticipate and understand exactly what clients need and make sure that the NAVFAC "facilities machine" is in synch with clients' vision of success.

"Our success depends on whether our products and services help our clients succeed in their operational mission," said Captain Tom Boothe, deputy commander for engineering operations.

While liaison officers will not be the only point of contact for a client, they are a point of accountability for the products and services delivered across all business lines. They monitor the health of client relationships and look for ways to improve them, spot trends and proactively move to turn them into opportunities, and intervene and facilitate solutions when needed.

"The idea is to develop and enhance a long-term partnership with every one of our clients that focuses on positioning ourselves to better meet their requirements," said Tom Weigand, the Southwest Division member of the Liaison Officer Leadership Team that helps guide the program for NAVFAC.

The LnO operating concept reflects NAVFAC's renewed commitment to be part of the Navy/Marine Corps Team as the Navy's facilities, installation and contingency engineers.

Indeed, clients are one of four focus areas of the NAVFAC Strategic Plan for Fiscal Years 2000-2002, which provides the guiding principles and key areas on which to concentrate NAVFAC's resources for the next few years.

'Our success depends on whether our products and services help our clients succeed in their operational mission.'
– Captain Tom Boothe, CEC, USN

So far, the program has gotten positive feedback from clients.

"Our activity liaison officer is valuable to us in terms of execution-time savings, resource savings and making us smarter about the tools available to get the work done," said Lieutenant Commander Ken Branch, public works officer for Naval Base Coronado.

While the program is still in the early stage of development on a NAVFAC-wide basis, Southwest Division has effectively been performing the LnO function for several years, including having the LnO spend a portion of the work week at the client site. This enables the LnO to partner more closely with clients by observing first-hand their day-to-day operations, which ultimately leads to a better appreciation of their mission, goals and requirements. Southern Division has also had its LnO program up and running for more than a year. Ultimately, NAVFAC will have in place individuals available to ensure proper service to more than 200 clients, at the activity, region, claimant and service levels.

Those in the NAVFAC community who are not LnOs may ask, "And what exactly does this mean to me?" The answer is this: know your LnOs for the projects you are working on, use them to better understand your client's mission requirements, and partner with your LnO to exceed client expectations for the projects you touch.

Mark Kraynak is the BRAC assistant for program coordination at NAVFAC headquarters.

Liaison Officer Components

1. The LnO Leadership Team, made up of leaders from NAVFAC's four EFDs, NFESC, and NAVFACHQ. This team will meet periodically to ensure positive corporate progress and hold monthly conference calls to maintain positive momentum.

2. A client satisfaction survey that will be performed every four months on a rotating basis among NAVFAC clients (each client will be surveyed about once a year); taking appropriate action based on their responses will be the most important aspect of the survey process.

3. The "LnO Manual" that describes for NAVFAC personnel the basics of how the program works; continual refinement of this document, which can be an effective basic training tool, will be needed as the program matures.

4. A list of client and LnO names, numbers and addresses via the Microsoft Outlook program; this reference tool is in the early stages of development.

Looking at
A CEC Career

CEC accessions officers work at

Spreading the Word

about the benefits of a CEC career.

ENS DAN HAYES

LT Matt Anderson, from Amphibious Construction Battalion One, discusses the battalion's equipment yard with applicants and recruiters during a VIP trip in California.

by Lori Tucker

The benefits and opportunities of a career with the Navy Civil Engineer Corps have never been better. The CEC's newest accessions program, the Bachelor Degree Completion Program, offers engineering and architecture students up to $60,000 just to finish their degrees. Despite these opportunities, CEC recruits are still high in demand. With only three CEC accessions officers in the country, raising awareness among well sought after engineering and architecture students about the CEC has been a challenge, but these officers are taking giant steps to get the word out.

"Recruiting engineers is tough because everyone wants engineers," said Lieutenant Michaela Bradley, CEC accessions officer for the Central United States. "Basically there is an engineer shortage in this country. Other people recruiting for engineers aren't restricted to hiring American citizens; we are.

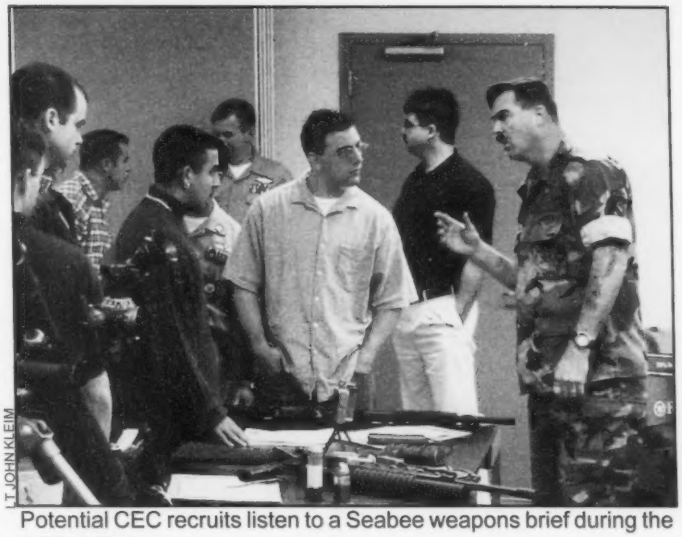
"Couple that with the fact that this is the smallest the military has been for some time, so there's less familiarity with what it's like to serve in the military. In a competitive

market, we're dealing with a shortage of people who consider serving in the military as an option."

To combat this shortage, CEC accessions officers are working to raise awareness about what a CEC career is like. The three officers spend on average three weeks out of every month on the road, visiting schools and teaching students about the CEC and the benefits of joining the Navy.

The two biggest lures for college students to sign up with the CEC are the Collegiate Program and the new Bachelor Degree Completion Program. The Collegiate Program starts during junior year and offers engineering and architecture students $1,800 per month until graduation, access to all active duty benefits and day for day credit toward promotions and retirement.

The Bachelor Degree Completion Program offers students the same benefits for three years rather than two years. Enrollment eligibility starts at the end of the freshman year. Under this program, a new CEC accession could earn nearly $20,000 a year during the last three years of college and after graduation could work 17 years to reap the benefits of a 20-year military retirement. If a recruit opts to stay past the required four years of commissioned service, he or she will spend one year earning a master's degree. Under this new program, the difference in service pay is significant; an ensign over three years earns $5,000 more annually than a new ensign with no time accrued.



LT JOHN KLEIM

Potential CEC recruits listen to a Seabee weapons brief during the CEC VIP trip.

'All the people I've seen put in the program have had their grades rise dramatically because they can drop those part-time jobs that have been dragging their grades down. We've really attracted some very high-caliber people.'
-LCDR Deanna Smith, USN

The money is usually not the biggest draw to new recruits, but it does help them while in school.

"All the people I've seen put in the program have had their grades rise dramatically because they can drop those part-time jobs that have been dragging their grades down," said Lieutenant Commander Deanna Smith of the Navy recruiting office in Houston, Texas. "We've really attracted some very high-caliber people."

In addition to not having to juggle a job with course work, students in the CEC's degree programs also appreciate not having to worry about their Navy training while in school. Daniel Lutz is a junior studying engineering at Texas A&M University in College Station, Texas. He signed up with the CEC after his sophomore year.

"I like how this program lets you be to finish your degree, and then you do your Navy training," Lutz said. "Some of my friends in the dorm are mixed between obligations with military science training and classes, and it makes it real hard on them."

To show students the excitement of a CEC career, CEC accessions officers have started VIP trips, modeled after the Navy Nuclear Propulsion Program's initiatives to recruit college students. The trips bring students to Navy bases around the country to talk to officers and visit work sites so they can see a CEC career firsthand. The Navy Recruiting Command and Naval Facilities Engineering Command split the expenses of the trip. So far, accessions officers have conducted two trips in Gulfport, Miss., and San Diego, and both trips were successful.

"It's a great selling point," said Lieutenant Scott King, CEC accessions officer for the Western United States. "Once they saw their responsibilities, many of them made the decision to become part of the CEC." King led the San

Diego trip in January. Of the 26 students who participated in the trip, King expects 20 to 22 students to join the Navy.

With such a high rate of success, CEC accessions officers hope to host VIP trips more frequently.

"When we started the trips, they were supposed to be on a quarterly basis," King said. "They're probably going to become more frequent because we found we were turning people away."

CEC accessions officers are also working to get other junior officers involved in recruiting. There are 92 colleges in the United States with accredited engineering and architecture programs, and the three accessions officers work hard to visit as many of them as they can, but sometimes they need some help.

money, Fuller wants to tell others why he has stayed in the Navy longer than he expected.

"In college I thought I would do it for four years and be out," he said. "Now I look up and it's 10 years later, and I'm still here. I am really enjoying my job and all the responsibilities that come with it."

With more officers pounding the pavement and new recruiting techniques like the VIP trips, CEC accessions officers expect to see more people joining the Navy.

"There's a misconception that Generation Xers are not interested in service," Bradley said. "That's not true."

Recruiting officers see firsthand that college students think the opportunities and benefits of a career with the CEC are strong enough selling points on their own without

'The program was something offered to me at the right time in my life, and I would like to offer it to other students.'
-LT Efram Fuller, CEC, USN

"It's hard for us to be at all the career fairs because they usually all happen around the same time," Bradley said. "We're working with a team of junior officers to train them to give presentations. We want to get other junior officers to visit the schools they graduated from or the schools in their area that we can't get to."

LT Efram Fuller, Seabee Readiness Manpower and Military Programs officer at NAVFAC headquarters, is one of the officers who has volunteered to visit the school he graduated from and other area universities in attempt to recruit engineering students.

"The program offers a lot of opportunities for students who may be struggling to pay for college," Fuller said. "It was something offered to me at the right time in my life, and I would like to offer it to other students."

In addition to informing students about the financial incentives included. Their primary job is to let engineering and architecture students know that these opportunities exist.

"Although the money is good, the money is secondary to serving the country and having a job they can be proud of," Smith said.

LEE SAUNDERS

Captain Bob Phillips, Commander, Southwest Division, Naval Facilities Engineering Command, briefs applicants and recruiters about his experiences in the Civil Engineer Corps.

Looking at
A CEC Career

A junior CEC officer discusses

Learning the Ropes

of a career with the Civil Engineer Corps.

LORI TUCKER

Lieutenant Junior Grade Heather Wishart Shriner juggles her time between construction projects at Andrews Air Force Base and the Washington Navy Yard.

by LTJG Heather Wishart Shriner, CEC, USNR

Growing up as the daughter of a reserve Army officer in a town with very little military presence, I was always proud of my father and my family's commitment to the armed services. My family's long military history includes Army service through the Revolutionary and Civil Wars, so my decision to join the Naval Reserve Officer Training Corps at the University of Virginia was the continuation of a long military tradition.

I entered the UVA NROTC battalion in 1992. NROTC developed me from a timid fourth-class to a confident, self-assured Midshipman of the Semester, Midshipman Battalion Commander, and Secretary of the Navy Distinguished Graduate.

I first learned of the Civil Engineer Corps through accessions officer briefs given to the UVA battalion and during CORTRAMID, the summer training for third-class NROTC midshipmen. Although I kept my mind open to the line officer options, my interest in civil engineering kept

leading me back to the CEC.

I delayed my commission to go to graduate school, so it wasn't until January 1998 I was commissioned a CEC officer by my husband, a captain in the Army infantry. The different branches of service made co-location difficult. However, the CEC detail office did an outstanding job of working with the infantry branch managers to bring us together in Washington, D.C.

I started out working at the CEC detail office while waiting for the next Civil Engineer Corps Officer School (CECOS) Basic Class. Working at the detail office gave me a good understanding of the overall workings of the CEC and a great appreciation of the difficulty of giving 1,500 officers the locations and jobs they want. I also learned a lot about the diversity required of a career CEC officer— a combination of ROICC, public works, and Seabee billets, along with some staff experience and a desire to work on both coasts and overseas to gain the broadest experience possible.

After a few months of working at the CEC detail office, I was asked to work on an air station facility study at Office of the Chief of Naval Operations (OPNAV N44). Working in the planning section, I developed a CD-ROM categorizing the Navy's 28 air stations. These two positions gave me a great broad-picture view of the CEC and allowed me to get to know some really impressive CEC officers.

In July of 1998, I entered CECOS Basic Class 214. There I "caught up" with my fellow students on the particulars of construction and public works. My stash tours prevented me from spending any time with my permanent duty station prior to CECOS, and my undergraduate civil engineering degree covered more engineering design than construction. However, the other students in the class were great teachers, and I learned a lot about estimating, scheduling, and project management from them. My advice to future students would be to learn as much as possible at your future billet prior to CECOS, but not to be concerned if you lack knowledge of construction techniques. It took a little more effort, but the instructors and other students do a great job of sharing their experience.

That October I was the distinguished graduate of my basic class, which most people say means I didn't have enough fun. They're probably right! However, the time I spent studying really helped once I checked into Engineering Field Activity Chesapeake, as an Assistant Resident Officer in Charge of Contracts at Andrews Air Force Base, Md. Since my very first day I have been responsible for a cumulative total of about $28.7 million in contracts. One of the benefits of working at Andrews is that the projects tend to cover a wide variety of engineering disciplines. I have been the AROICC on the new hydrant refueling system, which includes a new pump house, more than five miles of new fuel piping, and coordinating our operations with the airfield manager to avoid disruption to Air Force One. I have been responsible for heat plant renovation and demolition, where the age of the building and proximity to the officers' club and hospital taught me how to respond quickly to unforeseen conditions. I have also been the AROICC on an 80-room design/build bachelor housing project, a 46-unit housing renovation, and numerous design reviews. Recently I began two projects at the Washington, D.C., Navy Yard, and was assigned to a fitness center construction within the shell of a historic building and an electrical renovation that requires tearing up the front drives of flag officer housing. In spring 2000, I will become the Assistant Public Works Officer at Naval Support Facility Thurmont, Md., where I will be responsible for the environmental program and work in a unique all-Seabee public works environment.

LTJG Shriner inspects new PVC plumbing rough-in in the laundry room of a housing unit at Andrews Air Force Base, Md.

My point in describing these projects is that only in the CEC will a junior engineer with no construction experience

'Since my very first day I have been responsible for a cumulative total of about $27.5 million in contracts.'
-LTJG Heather Wishart Shriner, CEC, USNR

have responsibility and impact on this many large-scale jobs. It can be daunting to think of the numerous problems that could arise. At times I have felt overwhelmed by the awesome responsibility of too much to do, too little time, and not enough technical knowledge. But I haven't done it alone. By my side have been some of the most dedicated and experienced teachers: engineering technicians, field contracting employees, and EFA specialists. The knowledge these people provide has given me the tools I need to make critical decisions, and the confidence to know I've done the right thing.

Another benefit to the CEC is the unlimited training opportunities. In addition to required contracting courses, I have attended environmental training and the Fall Protection Competent Person course, where I became certified to supervise and inspect fall protection systems by using them myself.

As with any military career, there are challenges associated with the CEC. Moving is difficult on any dual-career couple, particularly when both professionals are active duty. Also, the CEC is unique in that many commands are spread over a large geographic area, which can hinder the wardroom cohesion that is more prevalent in other communities.

Despite these challenges, the CEC remains a rewarding opportunity for junior engineers to gain experience in a variety of disciplines and work in locations not open to the average engineer. Hard-working engineers can be deeply rewarded by the vast amount of responsibility the CEC offers, and their potential to impact important, critical projects. I have benefited greatly from my experiences as an AROICC and stashed ensign, and look forward to new challenges at my next command.

LTJG Heather Wishart Shriner currently serves as an Assistant Resident Officer in Charge of Contracts for Engineering Field Activity Chesapeake. She supervises projects at Andrews Air Force Base and the Washington, D.C., Navy Yard.

Shriner and ENS Josiah Meyers review plans for a housing renovation project at Andrews Air Force Base, Md.

A Helping Hand

Seabees deploy to Albania and Kosovo during times of need

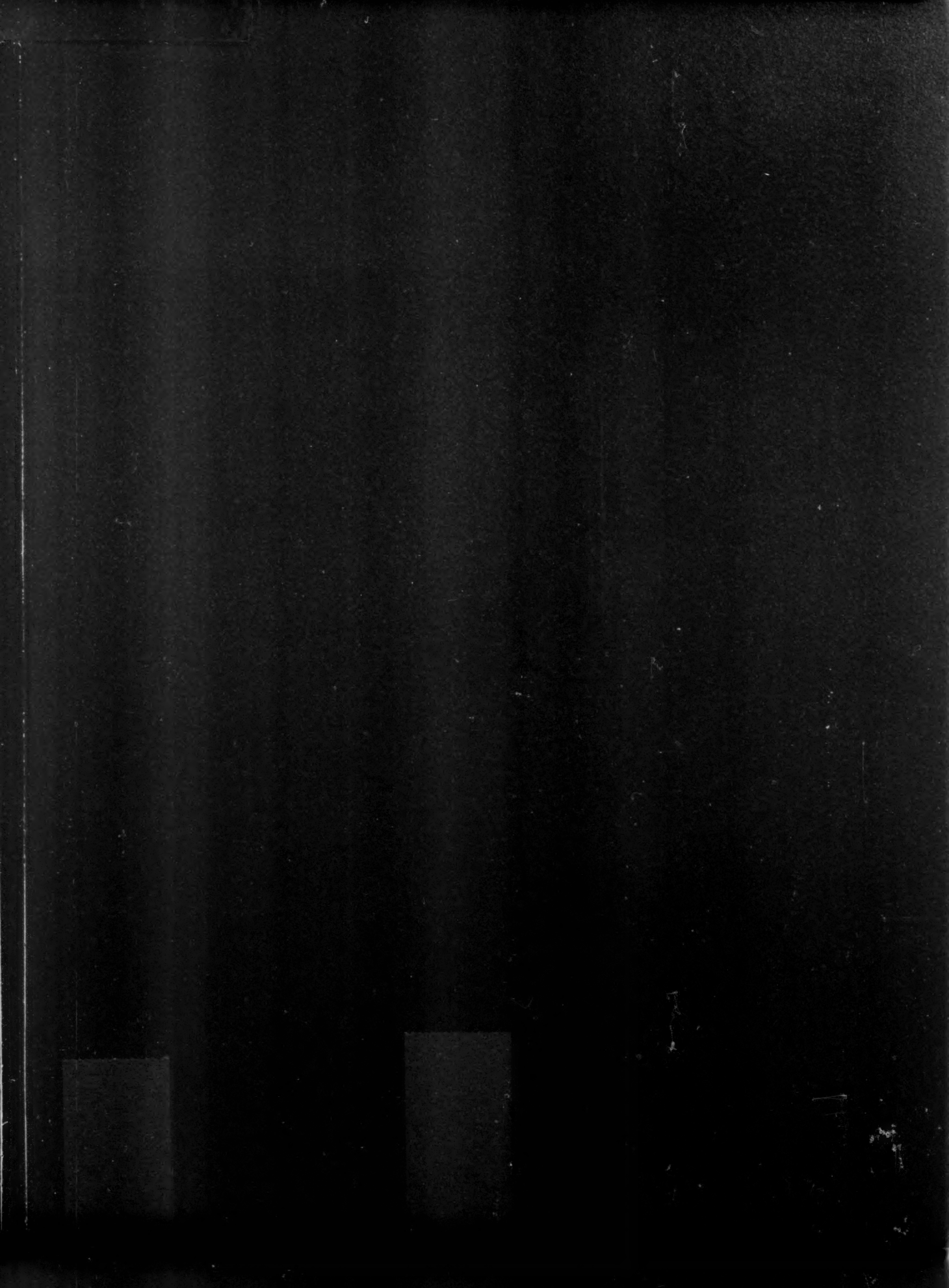
by LT Dan Stoddard

LCDR ED AUSTIN

LT Michael Danforth of Naval Mobile Construction Batallion Three examines a local while HM1 Dan Waid looks on during medical checkups in Kosovo.

By performing a wide variety of tasks to support troops in Albania and Kosovo, Seabees showed Army and Air Force members exactly what they "can do," proving that the construction force of choice still remains the Seabees.

Just prior to leaving for their scheduled seven-month European deployment to Rota, Spain, Naval Mobile Construction Battalion (NMCB) Three received the urgent call to send a reinforced Air Detachment of 150 Seabees along with a P25M Table of Allowance (TOA) core module within six days to Albania in support of Joint Task Force Shining Hope (JTF-SH).



JO2 MARIA BLANCHARD

Naval Mobile Construction Batallion Three's BU3 Daniel Spreng constructs a soccer goal in Kosovo with the help of some locals.

The mission of Joint Task Force Shining Hope was to provide care and relocation to refugees and to construct camps in Albania. NMCB Three's Detachment Albania was originally tasked to provide construction support to co-located military units. This tasking changed with the June 10, 1999, signing of the Peace Accord, which changed the focus of the mission. The new focus was on upgrading and repairing a 50-kilometer section of a deteriorated route from Northern Albania to Kosovo. The goal was to have two lanes capable of handling Military Load Class 70 traffic before winter to provide returning Kosovar refugees safe passage. This was a multi-service effort with road repair tasking assigned to the 130th Combat Engineer Brigade, 94th Combat Heavy Battalion and NMCB Three Detachment Albania.

Meanwhile, NMCB 40, finishing its deployment in Rota, worked round the clock to prepare for the first time configuration and deployment of a P25M TOA core module, with additional equipment totaling 99 pieces of civil engineer support equipment (CESE) and 42 ISO containers to be loaded onto a ship. An advance party of six people from NMCB Three headed to Albania to begin initial coordination with JTF-SH.

ENS MARC WILLIAMS

Seabees repair a road in Kukes, Albania, as part of a civic action project.

The first group of Seabees and equipment arrived at Camp Wedge, in the vicinity of Kukes located 20 miles west of the Kosovo border, on June 7 via MH-53 helicopter. On June 8, the first convoy arrived at the camp. Each convoy took 18 hours to cover 150 kilometers due to the poor road conditions and treacherous mountain terrain. Including all resupply operations, the total effort required 100 airlift missions and 32 round-trip convoys to deliver the tent camp, CESE and the 232nd Combat Communications Squadron, who provided communications support, adding up to a staggering 2,210 mandays and logging more than 50,000 convoy miles.

Roadwork began June 11 and was completed July 1. Seabees from NMCB Three improved 51 kilometers of road by widening shoulders, filling potholes and repairing numerous washouts. The detachment also completed various civic action projects in and around the city of Kukes that included renovating an elementary school and regrading the main street through the town. The detachment of 150 Seabees completed seven projects in 35 days totaling 2,580 mandays.

During the mission, more than 100 helicopter sorties were flown for convoy assistance and resupply, 250,000 gallons of water were purified, more than 50,000 convoy miles were driven, more than 2,800 tons of rock were used, and a million and one smiles and waves were returned. The mission was an incredible success. The men and women

SWCN Ray Hamilton of NMCB Three welds a fence around a Kosovar school to prevent children and soccer balls from rolling down the side of the hill.

JO2 MARIA BLANCHARD

of NMCB Three's Detachment Albania made significant and lasting contributions to Albania and its people while contributing to the humanitarian effort enabling the Kosovar refugees to return home following the signing of the Peace Accord.

Once Detachment Albania completed its mission, troops convoyed the 135 miles through Albania and into Kosovo directly to Camp Monteith to join Detachment Kosovo on July 10. In one of the largest contingency construction efforts since the Gulf War, NMCB Three had 377 Seabees including 19 Presidential Selective Reserve Call-up (PSRC) personnel, 235 pieces of CESE, and 93 containers in Kosovo at the peak of the operation. Without the assistance of the selective reserve personnel, the mission would not have been such a success. Within two days of arrival at Camp Monteith, NMCB Three personnel restored the power and water supplies to critical camp facilities at the former Serbian artillery training base, which was damaged heavily during the NATO air campaign. Generators provided additional power to Army and Navy command centers and tent camps. NMCB Three established the first shower point and field galley using TOA equipment within the first two days. Having showers greatly improved the morale of Soldiers and Seabees.

During their six-month tenure at Camp Monteith the Seabees were the only military engineer unit in camp. The camaraderie generated between the Army Soldiers and Navy Seabees facilitated the mission's success. Much of the basic camp functions such as temporary galley operations were "partnered" between the Army's 1st Battalion, 26th Infantry Regiment and NMCB Three, enabling support, badly needed direct labor personnel, and Soldiers to more effectively contribute to the peacekeeping and construction efforts. The battalion's initial tasking was to construct 64 Davidson-style SEAhuts by October 1. These SEAhuts would provide winterized quarters for up to 1,400 U.S. troops. Each SEAhut is approximately 3,100 square feet with five berthing bays and a male/female head facility. Considering the short time line, this was a phenomenal task, but Seabees charged ahead, viewing the task as simply another opportunity to succeed. NMCB Three was not alone in its venture. The Army's CONCAP (Construction Capabilities) contractor, Brown and Root Services (BRS), chipped in by using the company's own management personnel, hiring Kosovar local national labor forces and acquiring construction equipment. This "joint venture"

enabled each organization to make the most of each other's particular areas of expertise and created a successful team approach. The primary focus for BRS was to keep the Seabees supplied with construction material along with providing construction crews to augment the Seabees or work independently as necessary.

NMCB Three started earth work for the 64 SEAhuts on July 3. Vertical construction began on July 26, and by August 5, the battalion and BRS had shifted to 24-hour operations, enabling the original tasking to be completed ahead of schedule. At peak production, the SEAhut project included more than 600 military and civilian personnel working around the clock. The project used more than 2 million board feet of lumber, 16,000 sheets of plywood, 15,000 sheets of drywall, 6,700 concrete pedestals and 200,000 feet of interior electrical cable. The Seabees of NMCB Three led the military engineer/contractor team to successfully complete the original 64 SEAhut project on September 30, to meet the Task Force Commander's goal: "No snowflakes on Soldiers."

In addition to the 64 SEAhuts, NMCB Three constructed 13 guard towers along the camp perimeter, a mile-long perimeter earthen berm, 3,200 feet of HESCO bastion barriers and began earth work for the four-mile bypass road around the town of Gnjilane. They also completed more than 130 minor projects by utilizing a small specialized group of Seabees called a "Tiger Team" in support of 46 different military units. In six months, NMCB Three

LCDR ED AUSTIN

A local child patiently waits for his turn to see the doctor, while Shades, a local translator for the Seabees, takes a break between patients.

NMCB THREE ARCHIVE PHOTO

An excavator operated by a Seabee from Naval Mobile Construction Battalion Three breaks down a war-damaged building and other structures to make way for new construction in Kosovo. After the excavator safely breaks down the structure, a bulldozer, loader and dump trucks remove the debris.

expended more than 30,000 direct labor mandays while maintaining an unprecedented 89 percent equipment availability in a contingency environment.

After completing its mission, NMCB Three left Kosovo for homeport, and NMCB One came in to take over in December. The battalion has been tasked to construct a Davidson-style SEAhut chapel and barber shop, complete a 25-acre Army motor pool area, build an ammunition storage facility and Army checkpoint guard towers throughout the region, complete the four-mile Gnjilane ring road, demolish several existing buildings, build tank turning pads, and fill and place HESCO Bastion barricades and building bunkers. The mission remains strong for NMCB One Seabees, as they carry the same Seabee horsepower.

The work the Seabees have done so far in support of Joint Task Force Shining Hope has impacted the success of the military missions as well as the lives of those living in neighboring towns. The Seabees of NMCB Three and NMCB One can take great pride in knowing their efforts made a tremendous difference in helping to restore the war-torn Balkans.

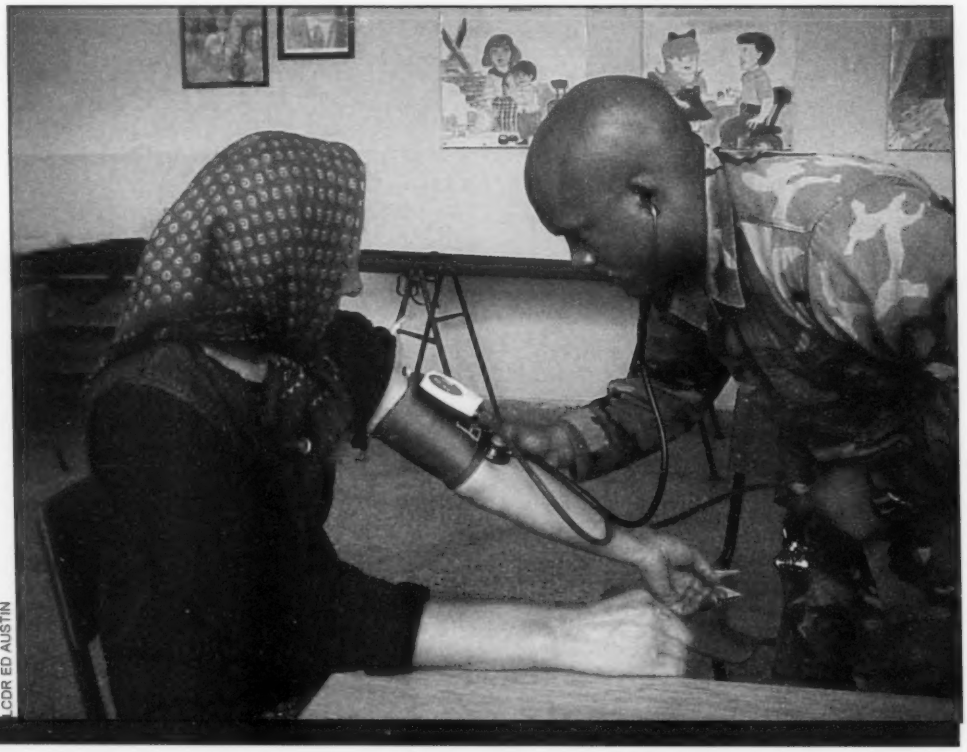
LT Dan Stoddard is the European Operations Officer for the Second Naval Construction Brigade, Norfolk, Va.

BU2 GENARO DEJESUS

CE1 Edyard Sy of NMCB Three works on a panel box during phase three of SEAhut construction.

SWCN Robert Upthegrove of NMCB One constructs hedgehog for a U.S. Army checkpoint.

BUC(SCW) BRUCE J. BARR



LCDR ED AUSTIN

HM1 Dan Waid checks a Kosovar woman's blood pressure during medical examinations Seabees provided for locals.

JO2 MARIA BLANCHARD

Young students show their appreciation for the construction work Seabees did to reopen their school.

Tiger Team Tackles Any Task

by JO2 Maria Blanchard

When Naval Mobile Construction Battalion Three first arrived at Camp Monteith they formed small working parties to take on the tasks of repairing and building.

Once the battalion began working on the Davidson SEAhuts, they could no longer afford to pull people from the companies for working parties. Builder Senior Chief William Lopez, operations chief, decided he needed to form a small, multi-skilled team that could take on a variety of jobs and complete them quickly. He then addressed the company chiefs about forming a group he calls the Tiger Team.

"I explained to the chiefs that prospective team members need to be real go getters, capable of working interdependently," Lopez said.

The Tiger Team consisted of two builders, one steelworker, utilitiesmen and an electrician. The members didn't just work within their skills. According to Lopez they did a lot of cross-rate training.

"They were a quick-response team for small projects," Lopez said. "They got stuff done fast."

The Tiger Team worked directly for NMCB Three's executive officer. All Navy work requests went to Senior Chief Lopez who reviewed and validated them before giving them to the XO.

The team did a lot of work for the Army as well. The Army submitted work requests to Monteith's Camp Mayor, who validated the requests and turned them in to NMCB Three's executive officer. The battalion's XO reviewed the work request and then launched the Tiger Team into action.

Supplying Hope

by ENS Marc F. Williams

Naval Mobile Construction Battalion Three's doctor, LT Tammy Penhollow, escorted some unique guests to the hospital in Gnjilane, Kosovo.

The guests, dressed for combat, were Seabees making their weekly visit to the hospital nursery in anticipation of holding one of the bundles of joy occupying the ward.

Penhollow brings the Seabees along to give them a different perspective on why they are there.

"It is an excellent experience for them, and most come out of it saying, 'That made my day,'" Penhollow said. "It inspires the humanitarian in everyone; there is something about the children that touches everyone's heart."

LCDR ED AUSTIN

HM1 Waid tries to find the cause of a child's tummy ache.

Some may see this mission as self-serving, but the doctors and nurses of the hospital are always happy to see the group coming.

"We have established a really good relationship with the pediatricians and nurses who work there," Penhollow said. "When they see us coming they run to open the door."

Gunnery Sergeant Derek J. Morris, a Force Reconnaissance Marine and NMCB Three's Military Advisor, went along on one of Penhollow's trips to the hospital.

"It is a great thing that we support the Gnjilane Hospital with supplies and nurturing," Morris said. "Our participation is a notable learning experience for everyone involved."

Seabees also have provided medical examinations for local residents who have not been able to see a doctor since the NATO airstrikes began.

"I don't feel like we are doing much except bringing hope," she said. But perhaps the hope and joy the battalions' visits bring is the best medicine for patients who have seen so much sorrow.

LCDR ED AUSTIN

LT Michael Danforth comforts a sick child with the help of Rosey, a local translator.

JO2 MARIA BLANCHARD

Three young Kosovar girls pick flowers for the Seabees.

Two Seabees move a prefabricated wall section into place while the crew leader checks for alignment.

Friends in Need

by JO2 Maria L. Blanchard

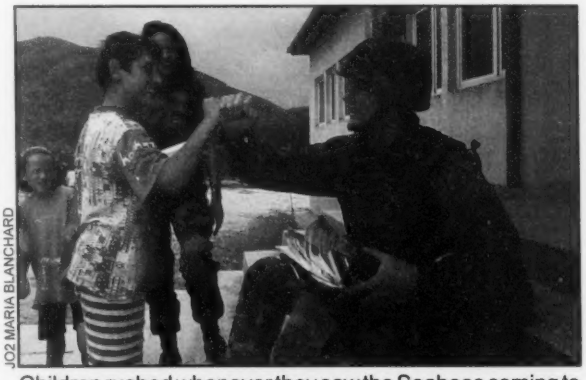
NMCB Three got a call for help November 21 from U.S. Army security forces in the town of Gnjilane to render fire fighting assistance at a burning mosque and nearby Serbian businesses.

Soldiers from the First Battalion 26th Regiment of the Army's First Infantry Division were called to the scene when the local fire fighters would not respond. What the Army needed was water – fast. Equipment Operator Constructionman Christopher A. King jumped in a pickup truck and followed the three water trucks and 10 Seabees under Army security escort to the scene of the fire.

"There was one building on fire on the left and two burning on the right," King said. "It took us about an hour and a half to put out the blazes because they kept re-flashing."

The primary mission of the Seabees at Camp Monteith, near Gnjilane, is to build a camp for the Army peacekeeping force, but they have become well known in the American patrolled security sector of Kosovo for their "Can Do" approach to getting any job done, including extinguishing a blaze.

NMCB THREE ARCHIVE PHOTO



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Children rushed whenever they saw the Seabees coming to work on renovating their school in Gnjilane, Kosovo.

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GUIDELINES FOR COMPLETION

Scheduling HVAC and controls acceptance at project completion

By Dick Cowan, PE and Bill Bersing, EIT

Many construction contractors, working hard to finish a Navy building project, experience an unpleasant surprise as they realize, too late, how much time and coordination they have yet to invest to achieve a successful acceptance of the heating, ventilating, and air conditioning (HVAC) and automatic controls systems.

Why does this occur? Often it is because the original project critical path method schedule did not allow for the sequence of many activities involved in achieving HVAC and Controls acceptance. Perhaps it is because the Navy's requirements for acceptance are near the "best practices" of the industry, and many contractors may have experienced only far less rigorous testing and balancing on other projects. And perhaps Navy reviewers aren't insisting that adequate time for TABS/ACATS be included in the schedules they review.

To help avoid problems achieving HVAC and automatic controls acceptance, a "template" CPM schedule models the many activities and sequences involved in the Navy's "TABS/ACATS" approach. The idea is to give this template to contractors to use as they are developing their construction schedules, and to Navy people reviewing contractor schedules.

The TABS/ACATS Template....

- Captures the concept of conducting TABS work in two different seasons, a cooling season test and a heating season test. This is important since the beneficial occupancy date (BOD) may occur in one season, but the contract may be held open until completion of the second season test and final acceptance.
- Notes that FAR 52-211-10 says testing is part of substantial completion, and NAVFAC guide spec 01770 which says "The time required to complete all work and testing as prescribed by sections 15901, 15910, and 15950 is included in the allotted calendar days for completion." Too often, contractors plan for BOD to occur before TABS/ACATS.
- Does not include normal submittals prior to purchase, fabrication, delivery, and installation, and other closeout documentation such as warranties.

What is TABS/ACATS?

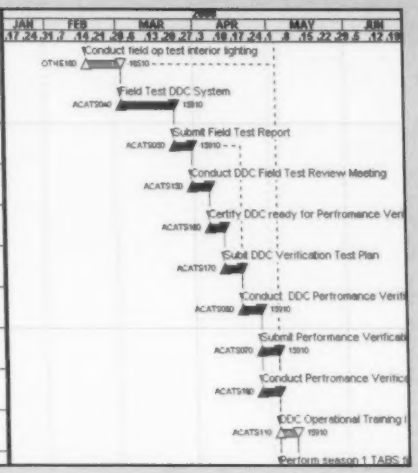
TABS/ACATS are the acronyms for Testing, Adjusting, Balancing, and Start Up of HVAC systems and Automatic Controls Acceptance Tests. Another common acronym is DALTS for Duct Air Leakage Tests. These three acronyms describe an organized and systematic process of submittals, field work, tests, and reviews which check the operation and results of HVAC systems and their controls. The Naval Facilities Engineering Command guide specifications may call for the construction contractor to subcontract with a qualified testing firm to plan, conduct, and report on this process.

Benefit of high-quality TABS/ACATS effort

As explained in a TABS/ACATS manual by Darrell Larsen, PE and J. Stock Dinsmore of the Atlantic Division Construction Engineering Branch, the TABS/ACATS approach can reduce HVAC systems problems after facilities are occupied, minimizing operational disruptions, inconvenience, or discomfort for our customers. Without such an approach, such problems are almost inevitable in the more sophisticated and complex HVAC systems designed into today's facilities—systems responding to the demand for greater energy conservation, higher indoor air quality, and being risk-free of sick building syndrome or legionnaires' disease.

A good acceptance approach can save a lot of money

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
OTHE160	Conduct field op test interior lighting	10	18FEB00	02MAR00
ACATS040	Field Test DDC System	15	03MAR00	23MAR00
ACATS050	Submit Field Test Report	5	24MAR00	30MAR00
ACATS150	Conduct DDC Field Test Review Meeting	5	31MAR00	06APR00
ACATS160	Certify DDC ready for Perfromance Verification	4	07APR00	12APR00
ACATS170	Subit DDC Verification Test Plan	5	13APR00	19APR00
ACATS060	Conduct DDC Perfromance Verification Test	5	20APR00	26APR00
ACATS070	Submit Performance Verification Test Report	5	27APR00	03MAY00
ACATS180	Conduct Perfromance Verification Review Meeting	5	27APR00	03MAY00
ACATS110	DDC Operational Training I (5 days)	5	04MAY00	10MAY00
ABS130	Perform season 1 TABS	7	04MAY00	12MAY00



Template for CPM Schedule

The template includes schedule activities in eight general areas:

Administrative requirements such as submittals required for the qualifications of the TABS Agency, the Controls Testing Plans, the TABS Agenda, etc.

Other Building activities including suspended ceilings and duct insulation which should follow, not precede, Duct Air Leakage Testing (DALT) so that any leaks are easy to find, and completion of activities including fire protection system, linked to HVAC controls; fire alarm system, linked to HVAC controls; door hardware; electrically controlled locks, linked to fire alarm; and HVAC controls.

Duct activities to describe installation and DALT of sections of duct work.

Piping to describe installation and testing of piping serving HVAC systems.

Major Mechanical Equipment start-up and debugging activities to describe the separate installation and testing of chillers, air handling units and boilers, which must be tested for proper separate operation before their operation as part of a complex controlled system can be checked.

Controls activities to include the debugging and calibration of controls components and the complex ACATS work.

TABS to describe the balancing of the HVAC system, the data reporting, and the final verification stages.

over the life of a facility. A properly balanced HVAC system runs more efficiently, costing less in energy to run fans and other equipment. It may avoid the hidden costs of producing heat and cooling that is wasted because it doesn't get to the right place. It avoids the cost of leakage from ducts and the extra energy costs and replacement costs of fans, heaters, and cooling equipment that is working over hard to make up for leakage.

A good acceptance approach can also avoid problems with automatic controls systems, especially when systems are partially "design-build" or based on "performance specifications" requiring interpretation, design and detailed shop drawings by fabricator and installer. A long chain of intent and communication makes problems inevitable. It takes careful preparation for testing, an exact sequence of tests and exact definition of the expected results to find problems and fix them.

Dick Cowan is a retired CEC captain and vice president of European Operations for O'Brien Kreitzberg, a professional project and construction management firm. His e-mail address is cowan@okpcm.com. Bill Bersing also works for O'Brien Kretzberg and is assigned to the ROICC Office at Aviano Air Base Italy. His e-mail address is william.bersing@aviano.af.mil. *The template CPM schedule was developed in Primavera Project Planner software and is also available in Sure-Trak and Microsoft Project formats. To receive a free copy of the template on disk or as an e-mail attachment, contact one of the authors.*

GUIDELINES FOR COMPLETION

Scheduling HVAC and controls acceptance at project completion

By Dick Cowan, PE and Bill Bersing, EIT

Many construction contractors, working hard to finish a Navy building project, experience an unpleasant surprise as they realize, too late, how much time and coordination they have yet to invest to achieve a successful acceptance of the heating, ventilating, and air conditioning (HVAC) and automatic controls systems.

Why does this occur? Often it is because the original project critical path method schedule did not allow for the sequence of many activities involved in achieving HVAC and Controls acceptance. Perhaps it is because the Navy's requirements for acceptance are near the "best practices" of the industry, and many contractors may have experienced only far less rigorous testing and balancing on other projects. And perhaps Navy reviewers aren't insisting that adequate time for TABS/ACATS be included in the schedules they review.

To help avoid problems achieving HVAC and automatic controls acceptance, a "template" CPM schedule models the many activities and sequences involved in the Navy's "TABS/ACATS" approach. The idea is to give this template to contractors to use as they are developing their construction schedules, and to Navy people reviewing contractor schedules.

The TABS/ACATS Template....

- Captures the concept of conducting TABS work in two different seasons, a cooling season test and a heating season test. This is important since the beneficial occupancy date (BOD) may occur in one season, but the contract may be held open until completion of the second season test and final acceptance.
- Notes that FAR 52-211-10 says testing is part of substantial completion, and NAVFAC guide spec 01770 which says "The time required to complete all work and testing as prescribed by sections 15901, 15910, and 15950 is included in the allotted calendar days for completion." Too often, contractors plan for BOD to occur before TABS/ACATS.
- Does not include normal submittals prior to purchase, fabrication, delivery, and installation, and other closeout documentation such as warranties.

What is TABS/ACATS?

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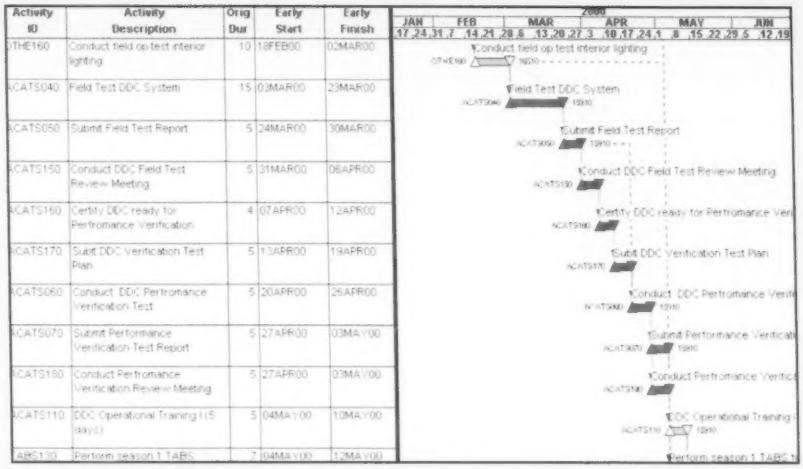
A good acceptance approach can save a lot of money



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ACATS110	DDC Operational Training (15 days)	5	04MAY00	10MAY00
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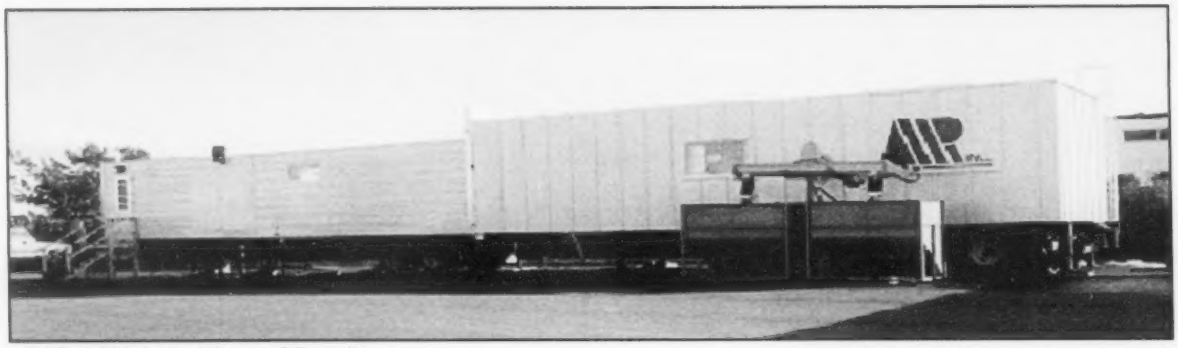
Dick Cowan is a retired CEC captain and vice president of European Operations for O'Brien Kreitzberg, a professional project and construction management firm. His e-mail address is cowan@okpcm.com. Bill Bersing also works for O'Brien Kretzberg and is assigned to the ROICC Office at Aviano Air Base Italy. His e-mail address is william.bersing@aviano.af.mil. *The template CPM schedule was developed in Primavera Project Planner software and is also available in Sure-Trak and Microsoft Project formats. To receive a free copy of the template on disk or as an e-mail attachment, contact one of the authors.*



PCB-ACM destruction mobile unit

ASBESTOS

POLYCHLORINATED BIPHENYL CONVERSION SYSTEM

by Jeff Heath, PE, MBA; Jerry Hermanson and Michael Sargeant, CH, CSP

photos by Puget Sound Naval Shipyard

The Navy generates a unique waste stream from facility abatement and ship maintenance and repair projects that contains polychlorinated biphenyl (PCB) and asbestos-containing material (ACM). The best way to handle the waste would be a method that completely destroys this waste and would result in end product recycling instead of landfill disposal.

Naval Facilities Engineering Service Center (NFESC), Puget Sound Naval Shipyard (PSNS), Engineering Field Activity (EFA) Northwest, and Congressman Norm Dicks, in partnership with Asbestos Recycling Inc. (ARI) of Kent, Washington, are conducting a demonstration of just such a technology at PSNS to validate and prove the technology for possible Navy use. A portable unit, two trailers and a skid mounted gas scrubber, use a thermochemical process to convert ACM contaminated with PCBs into stable, nonhazardous material.

Representative Norm Dicks (D-Wash.), gives ARI developer Jerry Hermanson his approval.

The process evenly mixes the waste with mineralizing agents and exposes the mix to approximately 2,300 degrees Fahrenheit, converting the PCB contaminated ACM into an inert, stable, nonhazardous, and non-regulated "clinker" of potentially recyclable material. The waste volume is reduced by almost 90 percent. Most importantly, cradle-to-grave liabilities associated with PCB-ACM end since all regulated wastes are consumed. The PCB-ACM Conversion System conforms to National Emission Standards for asbestos conversion processes, conforms to federal parameters for PCB destruction, and complies with OSHA Health and Safety Standards.

An integral part of the permitting process includes an Environmental

PSNS Key personnel, Richard Yans and Dennis Buckingham are the movers and shakers behind the technology.

Protection Agency-approved demonstration test burn at PSNS. All operating parameters defined by federal, state and local permits for PCB-ACM processing are monitored and reported. An independent emissions testing company validates destruction removal efficiency.

Currently, the PCB-ACM Destruction Mobile Unit is contained in a controlled environment inside two transportable trailers. The operations trailer is a negative pressure air chamber vented through HEPA filters. Worker exposure is considerably below Occupational Safety Health Administration (OSHA) permissible exposure limits. Potentially up to 900 pounds of PCB-ACM can be processed through this unit per hour. This first generation prototype is being used to demonstrate technology capabilities and will generate additional data necessary to develop and construct permanent, modular units for Navy-wide implementation. In March, a demonstration test burn at PSNS began. Approximately 18 tons of conventional double-bagged ACM contaminated with highly concentrated PCB transformer oil (up to 560,000 ppm) will be processed and monitored by the EPA.

Upon successful demonstration and validation, ARI plans to design and construct second-generation modular units. The second-generation units will be transportable systems each capable of processing approximately 936 tons per year and will be approximately half the size than the prototype unit. These units are tentatively planned for Navy installations with landfill limitations or foreign operations that require an alternate system of disposal. Domestic areas of interest include Hawaii, Guam, and Alaska, and foreign interests have included Bermuda, Canada, France, Germany, Holland, and Italy.

Jeff Heath is the head of the Technical Applications Branch at the Port Hueneme, CA division of Naval Facilities Engineering Command. Michael Sargeant is an industrial hygienist at the Engineering Field Activity, Northwest Division of Naval Facilities Engineering Service Center. Jerry Hermanson is the proprietor and developer of the Asbestos – Polychlorinated Biphenyl Conversion System.

127 Complete Basic Training at CECOS

One hundred twenty-seven members of basic class numbers 216 and 217 graduated from the Naval School, Civil Engineer Corps Officer, Port Hueneme, Calif. Course work is comprised of eight weeks of specialized training pertinent to the Navy's needs for shore installation engineering, public works management, construction contracting and administration, and Seabee operations.

Basic Class 216
Graduation: Sept. 22, 1999

LTJG Roberto M. Alvarado

LT Richard D. Anderson

ENS Peter T. Aparico

LTJG Christopher Beaubien

ENS Gregorio D. Bergado

ENS Richard L. Bowles

LT Kelly M. Cantley

ENS Keith R. Centner

ENS Kevin G. Chiras

ENS Michael R. Contarino III

ENS Mary L. Godfrey

LTJG Matthew G. Grant

ENS David G. Grover

LTJG Joshua R. Hall

ENS Grant M. Hardgrave

ENS Robert Harris

LTJG Kent R. Hendricks

ENS Wendy E. Herring

ENS Gary D. Huling

ENS Jason G. Kranz

ENS Alex N. Kuriatnyk

ENS Phillip M. Lemonds

ENS Kevin A. Lobo

LTJG Paul M. Lucia

ENS Walter S. Ludwig

LTJG Charles E. Massie Jr.

ENS Gerald W. McNally

LTJG Nathan A. Morgan

ENS Gerald A. Neal

LTJG Tuan Nguyen

ENS Russell S. Pile

ENS Mark W. Powell

CWO2 Charles W. Schell

ENS Daniel A. Stokes

CWO2 Terrance A. Stoneking

ENS Omarr E. Tobias

ENS Jay H. Tulley

ENS Jeremy D. Vernon

ENS Daniel M. Wiegrefe

ENS Allen E. Willey

LT Carolyn M. Wisner

ENS Shea C. Zahner

Reserve Officers

These reserve officers were part of basic class 216 during the period June 28 through July 14, 1999.

ENS Luis Aguliar

ENS Cory W. Binns

ENS Chris R. Gascon

LCDR Michael R. Gray

ENS Jeremy H. Groves

ENS George T. Hamilton

ENS Kenneth W. Hanks

LTJG Kurt K. Herbst

LTJG Christopher J. Hunter

ENS Clifford K. Hurst

ENS Lawrence P. Kahle

ENS Lehmann Koo

CWO2 Paul M. Oleson

ENS Lester Ortiz

ENS Gregg A. Quinones

ENS Thomas M. Risse

CWO2 Richard E. Rozman

ENS Michael D. Sandifer

LTJG Charles R. Scaglione

ENS Christine M. Stengel

Basic Class 217
Graduation: April 7, 2000

ENS Ferdinand D. Abril

ENS Sylvester C. Admah

ENS George E. Alexander Jr.

ENS Dean E. Allen

ENS Douglas S. Anderson

ENS Jennifer C. Avery

ENS Jeffrey D. Bennion

ENS Legena M. Briest

LT Andrew E. Buescher

ENS Ross B. Campbell

ENS Somchanh Cavanh

ENS Jonathan N. Charbonnet

LT Timothy J. Dewitt

ENS Marcelo M. Dijamco

CWO2 Brian K. Dingman

ENS Vincent P. Gagliardo

LT Don L. George Jr.

LTJG William P. Gilroy

ENS Yamilet Gonzalez

LT Daniel W. Grippo

LT Darren R. Hale

ENS Wernher C. Heyres

ENS John T. Jeffrey

ENS Ajay D. Joshi

CWO2 Terry L. Knapp

ENS Charles B. Kubic

ENS Todd R. Laging

ENS Stephen T. Lepper

ENS Brian Leverette

ENS Robert C. Lewis

ENS Ronald C. Lewis

ENS David S. Libby

LT Jennifer J. MacBain

ENS Joel D. McMillan

ENS Tieman K. McMillan

ENS Jeffrey McQuillan

ENS Michael T. Meiggs

ENS Aaron W. Park

ENS Blake T. Plain

LTJG Nathanael B. Price

ENS Nolan E. Redding

ENS Harold F. Robinson

ENS Shawn M. Rockwell

ENS Marcus V. Rossi

ENS Roosevelt Sanders

ENS Angel L. Santiago

ENS Atiim D. Senthill

ENS Andrew J. Shinka

ENS Jason N. Silver

ENS Andrew J. Sonier

ENS Griffin K. Stauffer

LTJG Yougtae Suh

LT Robert W. Tidwell

LT Christopher R. Via

ENS Eric M. Walker

ENS Nathan A. Williams

ENS Jason N. Wood

ENS Yue Kang Zhang

Reserve Officers

These reserve officers were part of basic class 216 during the period January 10 through April 7, 2000

ENS Norie Corpuz

ENS Eric W. Hahn

ENS Joseph L. Herman

CWO2 Anne L. Hoppe

ENS John J. Schuler

ENS Robert M. Tincher

ENS Bill A. Wilkinson

CALLING ALL PHOTOGRAPHERS

Dust off your cameras and help *Navy Civil Engineer* magazine with its upcoming special edition, "Eyes on NAVFAC."

The aim of this issue is to show snapshots of the wide variety of NAVFAC components. We are looking for *quality* photographs of all military and civilian components of NAVFAC, the CEC and Seabees.

The Naval Facilities Engineering Command encompasses a wide variety of people and responsibilities spread all over the globe. We want to show snapshots of as many components of NAVFAC as possible. This means we need pictures not only of the big money construction projects, but a variety of ideas. Some ideas: divers, Seabees, NFESC, PW centers and departments, Marine units, special warfare Seabees, families, medical centers, bachelor and family housing, retirement ceremonies, award ceremonies, volunteer projects, the detail shop, reservists, etc.

Photos that depict safety or uniform violations will not be considered. Candid, unrehearsed shots are usually better than those that are posed.

To be considered for publication, photos must be received at NAVFACHQ Public Affairs no later than **May 20, 2000**. Submit color prints of any size or digital images that are at least 5 by 7 inches in size at a resolution of at least 300 dpi. Digital images may be submitted via disk or e-mail and should be sent in .jpg format.

Navy Civil Engineer encourages those willing to participate to take pictures specifically for this publication. However, archive photos taken within the past year will also be accepted.

Please send credit and caption information with each submission. Information should include photographer's name, rank/rate/GS and duty station, where the photo was shot, a brief description of the action in the photo and names, ranks/rates/GS and duty stations of people pictured.

Send photos and accompanying information to Editor, Navy Civil Engineer, 1322 Patterson Ave. SE Suite 1000, Washington Navy Yard D.C. 20374-5065, or e-mail to McNeilEL@navfac.navy.mil. For more information call DSN 325-9008, commercial (202) 685-9008.

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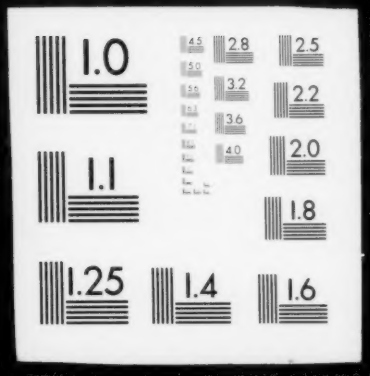
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